



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/516,324

02/15/2005

Thorsten Scheibel

04232

3916

23338 7590 11/07/2007
DENNISON, SCHULTZ & MACDONALD
1727 KING STREET
SUITE 105
ALEXANDRIA, VA 22314

EXAMINER

LAZORCIK, JASON L

ART UNIT

PAPER NUMBER

1791

MAIL DATE

DELIVERY MODE

11/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/516,324

Applicant(s)

SCHEIBEL ET AL.

Examiner

Jason L. Lazorcik

Art Unit

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/24/2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, and 9-11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Cagliostro (US 4,824,711).

Cagliostro teaches a method for producing a honeycomb shaped carbon based structure including a CVI and/or CVD structural reinforcement procedure. Specifically with respect to the pending claims, the reference teaches :

1. Obtaining a resin impregnated fabric comprising organic and/or organic fibers in the form of a honeycomb shaped structure (Column 2, line 42 to Column 3, line 14). The preferred fabric may comprise Aramid paper, phenolic resin fibers, or "any number of suitable reactive organic polymers which can be woven" (Column 4, lines 43-60) [**Claims 2,9**]
2. Pyrolyzing the resin impregnated structure in the temperature range of 700-1000°C (Column 2, lines 11-14) [**Claim 7**]
3. Transferring the pyrolyzed body to a reactor wherein a silicon carbide material is precipitated from the gas phase upon the pyrolyzed base body thereby "stabilizing and/or compressing" said base body (Column 4, line 61 to column 5, line 20, and Column 5, lines 21-34) [**Claims 3, 4, 5**]. It is here understood that the disclosed deposition of trichloromethylsilane and subsequent thermal treatment to produce silicon carbide implicitly reads upon the claimed "siliconizing" step of the base body [Claim 11]

Art Unit: 1791

4. The "stabilized" base body is then optionally subject to a secondary pyrolysis step (Column 3, lines 3-6) and further strengthening/finishing operations (Column 8, lines 18-25) [**Claim 10**]

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6, 8, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cagliostro (US 4,824,711) in view of Luhleich (US 4,293,512).

As set forth in the above rejection under 35 U.S.C. 102(b) the Cagliostro reference teaches essentially every element of Applicants claimed invention with the following noted exceptions:

1. The reference is silent regarding the claimed step of stabilizing the pyrolyzed body by application of a ceramic slip followed by conversion of said slip to SiC.

Art Unit: 1791

2. The reference is silent regarding a positive step of heating the base body to a temperature range between 1700°C and 3100°C.

Luhleich teaches (see abstract) a method for providing a protective carbide layer on a carbon based substrate. Specifically, the reference teaches that the substrate may be directly dipped into molten silicon. The reference alternately teaches that a paste or ceramic "slip" may be applied to the exterior of the body followed by rapid heating to a temperature in the range of 1550°C to 1800°C (Column 2, lines 55-58). Luhleich teaches that application of the exterior protective carbide coating in accordance with the disclosure provide increased resistance to corrosive effects at high temperatures" (Column 1, lines 14-17).

Further, one having no more than an ordinary level of skill in the art at the time of the invention would recognize the Luhleich teachings as an analogous and closely related procedure to the CVI/CVD process set forth by Cagliostro. In view of the foregoing, it would present little more than a trivial extension over the prior art of record to combine the slip or molten silicon immersion techniques set forth by Luhleich with the process set forth by Cagliostro. Such a modification would have been obvious to one of ordinary skill seeking to provide the carbon substrate with "increased resistance to corrosive effects at high temperatures" as taught by Luhleich.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicants response to the instant Office Action should carefully

Art Unit: 1791

consider each of the references made of record in Applicants IDS submission from February 24, 2005. Specifically, although the references are not relied upon for the instant rejection, the disclosures set forth by Chenier (US 6187123) and Rousseau (US 5,893,955) are understood to be directly applicable to at least Applicants independent claim under 35 U.S.C. 102(b) and/or 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

Application/Control Number: 10/516,324

Page 6

Art Unit: 1791

JLL